

06/29/06

REPORT  
QUARTERLY GROUNDWATER SAMPLING and  
ADDITIONAL MONITOR WELL INSTALLATIONS  
MARCH 2006  
MARYLAND SQUARE SHOPPING CENTER  
3661 SOUTH MARYLAND PARKWAY  
LAS VEGAS, NEVADA  
FOR AL PHILLIPS THE CLEANER

H-000086

URS Corporation  
Job No. 26698724.00005  
April 25, 2006

April 25, 2006

National Drycleaners, Inc.  
4510 W. 63rd Terrace  
Prairie Village, KS 66208  
Attn: Mr. Randy Jackson

Al Phillips the Cleaner  
3250 Ali Baba Lane, Suites C-F  
Las Vegas, NV 89118  
Attn: Mr. Stephen Mailloux

Re: **Quarterly Groundwater Sampling, March 2006**  
**Additional Downgradient Monitor Well Installations, March 2006**  
**Maryland Square Shopping Center**  
**3661 South Maryland Parkway, Las Vegas, Nevada**  
**Facility ID: H-000086**

Gentlemen:

URS Corporation is pleased to submit the March 2006 quarterly groundwater sampling event report for the Maryland Square Shopping Center. Groundwater from 14 monitoring wells was sampled during this quarterly sampling event and was submitted to the laboratory to test for volatile organic compounds (VOCs). Analysis of total organic carbon, dissolved iron, and manganese, chloride, nitrate, sulfate, and alkalinity was also performed for selected groundwater samples.

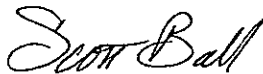
This report also includes information on the installation of two additional downgradient monitoring wells, MW-26 and MW-27, and subsequent sampling of these monitoring wells.

The Nevada Division of Environmental Protection (NDEP) requires the following statements to be provided by the responsible Environmental Manager for this project (per NRS 459.500):

*"I hereby certify that all laboratory analytical data was generated by a laboratory certified by the NDEP for each constituent and media presented herein."*

*"I, Scott Ball, hereby certify that I am responsible for the services described in this document and for the preparation of this document. The services described in this document have been provided in a manner consistent with the current standards of the profession and to the best of my knowledge comply with all applicable federal, state, and local statutes, regulations and ordinances."*

Sincerely,  
URS Corporation



Scott Ball, CEM #1316  
Expires Oct 15, 2007  
Project Manager

cc: [REDACTED], NDEP

**REPORT  
QUARTERLY GROUNDWATER SAMPLING  
MARCH 2006  
MARYLAND SQUARE SHOPPING CENTER  
3661 SOUTH MARYLAND PARKWAY  
LAS VEGAS, NEVADA**

Prepared for:

**Al Phillips the Cleaner  
3250 W. Ali Baba Lane, Suites C-F  
Las Vegas, Nevada 89118**

and

**National Drycleaners, Inc.  
4510 W. 63rd Terrace  
Prairie Village, KS 66208**

Prepared by:

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7180 Pollock Drive, Suite 200  
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**Job No. 26698724.00005  
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- Appendix A Borehole and Well Construction Logs for MW-26 and MW-27
- Appendix B Photographs of new well locations and construction
- Appendix C Laboratory Reports and Chain-of-Custody Forms

## 1.0 INTRODUCTION AND BACKGROUND

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This report presents the results of the March 2006 quarterly groundwater sampling event at the former Al Phillips the Cleaner (Al Phillips), Maryland Square Shopping Center located at 3661 South Maryland Parkway in Las Vegas, Nevada (Figure 1). This report includes the results of groundwater sampling of 14 monitoring wells during March 2006. Additionally, this report covers the installation of two additional groundwater monitoring wells near the downgradient edge of the groundwater plume, along with analysis of groundwater samples taken after installation. URS Corporation (URS), on behalf of Al Phillips, conducted the work. As required by State law, this project is being performed under the supervision of a certified Environmental Manager.

Al Phillips took over control of assessment activities at the site from the Herman Kishner Trust in Spring 2004. Prior to URS site investigations, Converse Consultants (Converse) performed several subsurface assessments and groundwater sampling at the former Al Phillips facility from August 2000 through March 2004. Converse's findings indicate that PCE was detected in soil beneath the former facility and in groundwater adjacent to, and downgradient from, the facility. URS reviewed eleven Converse reports (see References) and other documents obtained from Converse and the Nevada Department of Environmental Protection (NDEP). URS then evaluated the data to assess whether or not the PCE source area for the groundwater plume, the lateral and vertical extent of the groundwater plume, the geology of the site, and the nature of PCE concentrations in the groundwater plume were characterized. Based upon Converse's reports, concentrations of PCE above regulatory levels are present in soil beneath the former facility and in groundwater. Al Phillips and URS met with NDEP on April 29, 2004 to discuss the transfer of site responsibility to Al Phillips from the Herman Kishner Trust. Following this meeting, a work plan for additional characterization was prepared, with a final revised plan issued September 10, 2004 as noted above.

In addition to the data provided by Converse, URS obtained findings from SECOR International Incorporated (SECOR, 2004) regarding the presence of a hydrocarbon plume in downgradient monitoring well MW-11. This monitoring well is located on the Boulevard Mall Property, east of the former Al Phillips site. This well was sampled on February 12, 2004 by representatives from both SECOR and Converse. Analysis of the samples determined that a phase-separated liquid, identified as a weathered gasoline, was present in the groundwater from the well. SECOR has undertaken remedial action at this well to remove hydrocarbon-contaminated water.

In April 2005, URS drilled seven boreholes in and around the site of the former Al Phillips the Cleaner facility. URS drilled three boreholes (B-6, B-7, and B-8) around the area where the dry cleaning equipment was formerly located. The other five boreholes (B-9 through B-12) were drilled in areas surrounding the location. Soil samples were taken at five-foot intervals from each borehole,

except for B-11 and B-12. Based on analytical results from the soil samples collected during the April 2005 drilling and sampling event, only three soil samples (B-8-5', B-10-10', and B-10-15') exceeded the maximum soil PRG for PCE of 3,400 µg /kg for soil located on an industrial parcel. The highest concentration detected was 120,000 µg /kg in borehole B-10-10'.

In addition to the boreholes, six new groundwater monitoring wells were installed by URS in March 2005. These wells are MW-17, MW-18, MW-22, MW-23, MW-24, and MW-25. Well MW-17 is located in the parking area east of the building formerly occupied by Al Phillips. Monitoring wells MW-18, MW-22, MW-23, MW-24, and MW-25 were installed in the residential area downgradient (east) of the Boulevard Mall and Al Phillips.

## **2.0 NEW MONITORING WELL INSTALLATION**

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### **2.1 GROUNDWATER MONITORING WELL LOCATIONS AND DEPTH**

As proposed in the Revised Work Plan to NDEP, dated February 2, 2006, two new groundwater monitoring wells, MW-26 and MW-27, were installed using a truck-mounted hollow stem auger drill rig. Monitor wells MW-26 and MW-27 wells were installed near the downgradient edge of the groundwater plume, east of existing monitor well MW-25. Figure 3 shows the approximate locations of these two new monitoring wells, as well as wells MW-1 through MW-25. Borehole construction logs for wells MW-26 and MW-27 are in Appendix A. Selected photographs of well locations and installation are provided in Appendix B. The rationale for placement of these wells was to further evaluate the groundwater PCE concentrations along the eastern extent of the plume. These two new monitoring wells were also utilized to measure the depth to groundwater across the area so that the direction of groundwater flow and gradient beneath the area could be calculated. These two wells were drilled in the following locations:

- MW-26 – in Seneca Lane north of Ottawa Drive (approximately 1,500 feet east of the mall).
- MW-27 – in Ottawa Circle north of Ottawa Drive (approximately 2,100 feet east of the mall).

### **2.2 GROUNDWATER MONITORING WELL INSTALLATION**

Four-inch inside diameter, Schedule 40 PVC groundwater monitoring wells were installed in boreholes MW-26 and MW-27. Borehole MW-26 was drilled first, followed by borehole MW-27. A truck-mounted hollow stem auger drill rig was used to drill the boreholes and install the monitoring wells. Boreholes were drilled to a target depth of 35 feet below ground surface (bgs). Characteristics and construction information for wells MW-26 and MW-27 are listed on the Borehole and Well Construction Logs located in Appendix A. In general, well construction included a 25-foot section of 0.02-inch slotted well screen, with a 10-foot section of solid well casing in the upper portion of the well; and Monterey No. 2 (or equivalent) filter pack sand in the annular space surrounding the PVC screen and casing to three feet above the screen. Approximately three feet of hydrated bentonite pellets were placed on top of the filter pack sand. A neat cement grout was placed on top of the bentonite seal to within one foot bgs. The monitoring wells were finished at the surface using a traffic-rated well vault surrounded by concrete from one foot bgs to the ground surface.

Excess soil cuttings from well drilling were placed in DOT-approved 55-gallon drums and the drums were labeled and stored at the former Al Phillips facility prior to disposal.



The two new monitoring wells were not able to be surveyed by a Nevada licensed Land Surveyor in time for this report. URS is currently working to get a surveyor schedule to survey the new monitoring wells to a vertical datum so that water level measurements could be used to establish local groundwater flow direction and gradient. These new groundwater elevations will be presented in the next quarterly groundwater sampling report.

### **2.3 WELL DEVELOPMENT**

New monitoring wells MW-26 and MW-27 were developed after placement of the wells. The wells were developed to remove suspended sediment and prepare for groundwater sampling. Approximately 105 gallons of groundwater were developed from each well. Development water was placed in DOT-approved 55-gallon drums and the drums were labeled and stored at the former facility, prior to disposal in accordance with regulations.

### **2.4 GROUNDWATER SAMPLING**

Following development of the two new monitoring wells, the wells were sampled the following week on March 27, 2006. Results of sampling are presented in Section 4.0 of this report along with analytical results for other wells sampling during the March 2006 sampling event.

## 3.0 GROUNDWATER SAMPLING PROCEDURES

### 3.1 GROUNDWATER SAMPLING

Groundwater samples from 14 existing monitoring wells (MW-1, MW-7, MW-9, MW-10, MW-12 through MW-16, MW-18, MW-21, MW-22, MW-24, MW-25) were collected during this sampling event on March 13 and 14, 2006. Samples from the two new monitoring wells, MW-26 and MW-27, were collected on March 27, 2006. An electronic water level meter, accurate to the nearest  $\pm 0.01$  foot, was used to measure depth to water in each well. Total well depths were also measured by lowering the weighted probe to the bottom of the well and recording the depth to the nearest 0.1-foot.

Monitoring wells were then purged prior to sampling. A minimum of three casing volumes of groundwater was purged using a submersible pump and/or a dedicated bailer. When used, the pump was decontaminated before use in each well. Casing volumes were calculated based on total well depth, standing water level, and casing diameter. Water quality parameters were monitored during well purging to evaluate when stable values had been attained. Temperature, pH and specific conductance (SC), dissolved oxygen (DO), turbidity, and oxidation reduction potential (ORP) were monitored during well purging. The depth to water, water quality measurements, and purge volumes were entered in the purge log.

Purge water and decontamination water was placed in DOT-approved 55-gallon drums. The drums were labeled and stored at the former Al Phillips facility, prior to disposal in accordance with regulations.

Monitoring wells were sampled using a clean disposable bailer. Groundwater samples were collected in four different types of containers based on the selected analysis. Water samples to be analyzed for VOCs were collected in three 40-milliliter clear glass VOA vials pre-preserved with hydrochloric acid. Three VOA vials were collected in case one breaks during transport. The VOA vials were filled so that there was no headspace. Water samples to be analyzed for TOC were collected in 500-milliliter amber glass bottles pre-preserved with sulfuric acid. Groundwater samples to be analyzed for dissolved iron and manganese were collected in one-liter clear plastic bottles that contained no preservative. These samples were filtered and preserved with nitric acid by the laboratory prior to analysis. Groundwater samples to be analyzed for chloride, nitrate, sulfate, and alkalinity were also collected in one-liter clear plastic bottles. Groundwater samples were transferred from the disposable bailer directly into the appropriate sample containers and were numbered by well number on the sample container.

Groundwater samples were labeled with the date and time the sample was collected, the sample and well number, and name of the firm and signature of the individual collecting the sample. The sample

containers were sealed, labeled, and stored in a cooler with ice. Chain-of-custody forms (Appendix C) were filled out with all the appropriate sample information, and accompanied the samples to the analytical laboratory. Field meter probes were decontaminated before use at each well.

## 4.0 FIELD DATA AND TEST RESULTS

### 4.1 WATER LEVELS AND GRADIENT

The depths to water in each of the 14 selected monitoring wells was measured March 13 and 14, 2006 and are listed on Table 1 along with historical data. Depths to water for wells MW-26 and MW-27 were collected on March 27, 2006. The depth to groundwater in these sixteen wells ranged from approximately 10.21 feet below top of casing in well MW-18 to 24.68 feet in well MW-22. Figure 2 shows hydrographs for the shallow wells during the last five years. In general, groundwater elevation has decreased by approximately one foot since the December 2005 sampling event. This is likely indicative of seasonal groundwater fluctuation. The general flow direction for the shallow aquifer varies from approximately N80°E to N85°E, as indicated by the groundwater contours and flow directions shown on Figure 3. As quarterly sampling continues, a better picture of quarterly water levels and their fluctuation will be evaluated.

### 4.2 GROUNDWATER ANALYSES AND CHEMISTRY

The groundwater samples were analyzed for VOCs by U.S. EPA method 8260B. Selected samples from monitoring wells MW-1, MW-13, MW-18, and MW-25 were analyzed for total iron and manganese; chloride, nitrate, and sulfate; alkalinity; and total organic carbon (TOC), by U.S. EPA methods 200.8, 300.0 and 310.1, and 415.1, respectively. The laboratory analytical reports and chain-of-custody forms are provided in Appendix C.

Table 2 summarizes field measurements of groundwater temperature, pH, specific conductance (SC), DO, ORP, and turbidity in the monitoring wells. Groundwater temperatures ranged from 22.4 to 24.2 degrees Centigrade (°C) and pH measured during this sampling event ranged from 4.67 to 6.83. Groundwater SC in the intermediate well (MW-9) was 2,080 microsiemens (equivalent to ohms) per centimeter ( $\mu\text{S}/\text{cm}$ ), while the SC of shallow groundwater wells ranged from 3,280 to 6,760  $\mu\text{S}/\text{cm}$ . Field measurements of DO concentration in the groundwater are used to monitor the extent of natural attenuation occurring within the aquifer. DO concentrations below 0.5 milligrams per liter (mg/L) are considered characteristic of anaerobic conditions (Wiedemeier et al, 1998). DO concentrations during the March 13 and 14, 2006 sampling event in the shallow and intermediate wells were unavailable due to a failure with the DO instrument causing erroneous data to be given. DO concentrations in new monitoring wells MW-26 and MW-26 were 2.59 mg/L and 2.44 mg/L, respectively. ORP values for shallow wells ranged from 68 to 634 millivolts (mV), while the intermediate well had an ORP of 496 mV.

The Nevada Drinking Water Standards Maximum Contaminant Level (MCL) for PCE in groundwater is 5 micrograms per liter ( $\mu\text{g}/\text{L}$ ). Analytical results for groundwater collected during

this sampling event from shallow wells MW-1, MW-13, MW-14, MW-18, MW-21, and MW-24 through MW-27 exceeded the PCE MCL. Table 3 summarizes the analytical data for PCE detected in the wells. Figures 4A and 4B show the PCE concentrations vs. time in the shallow and intermediate wells, respectively. The highest concentration of PCE detected this quarter was 3,700 µg/L in shallow well MW-13. Well MW-13 is located down gradient from the site on the Boulevard Mall property near the northeast corner of the front parking garage. PCE was not detected in shallow wells MW-10, MW-16, and MW-22. The analytical results for groundwater collected from intermediate well MW-9 were non-detect for the first time since sampling began. PCE was detected in quantities below the PCE MCL in shallow wells MW-7, MW-12, and MW-15. Monitoring wells MW-26 and MW-27 were sampled the week following installation, on March 27, 2006. PCE concentrations in MW-26 were 730 µg/L and 220 µg/L in MW-27, which are the furthest downgradient wells at this site. Figure 5 shows the monitoring well locations, respective PCE concentrations for selected shallow and intermediate wells, and the estimated PCE plume area for the shallow aquifer for this current sampling event.

Trichloroethene (TCE), a degradation compound of PCE, was not detected in groundwater this sampling event. TCE is a first order reductive dechlorination (anaerobic conditions) degradation compound of PCE. Based on prior groundwater analytical results, TCE has been detected in low concentrations in wells MW-2, MW-6, and MW-22 in prior sampling events.

A secondary degradation compound, cis-1,2-dichloroethene, was not detected this sampling event. This compound has been detected at low concentrations in samples from prior sampling events and is potentially derived from breakdown of the PCE impact.

Table 4 summarizes the results of laboratory testing for ionic compounds for the March 2006 sampling event. This is the fourth sampling event during which these parameters have been monitored. Iron concentrations ranged from 2.6 mg/L to 24.0 mg/L and manganese concentrations ranged from 0.012 mg/L to 0.230 mg/L. The anions (chloride, nitrate, and sulfate) ranged from 150 to 170 mg/L, 5.2 to 8.4 mg/L and 1,500 to 1,600 mg/L, respectively. Total alkalinity laboratory concentrations ranged from non-detect 220 to 250 mg/L. Total organic carbon (TOC) concentrations ranged from 1.4 to 3.8 mg/L.

## 5.0 CONCLUSIONS

### 5.1 GROUNDWATER SAMPLING CONCLUSIONS

In general, historical laboratory analytical data indicates that PCE concentration levels in monitoring wells have fluctuated over time, dating back to the first analysis by Converse in August 2000. PCE concentrations increased in only one of the sixteen monitor wells samples this quarter compared to that detected in December 2005. PCE concentrations in the most easterly downgrade well MW-27 (installed in March 2006) were 220 µg/L.

Based on the groundwater monitoring and analytical results obtained during the last three sampling events, it appears that the PCE groundwater plume is approximately 600 feet wide and a minimum of 4,000 feet long. The groundwater plume is relatively narrow and may follow an old paleochannel.

### 5.2 REMEDIAL EFFORTS

*There is no evidence in the borings to support this statement*

Al Phillips will focus future remedial efforts on the PCE source area. A 'Proposed Remedial Pilot Study Letter' was submitted to NDEP on December 27, 2005. This letter proposed, based on analysis of site conditions and remedial conditions in the Las Vegas valley, the installation of a groundwater air-sparging (AS) pilot remedial system at the facility.

Additionally, contact has been made with the new property owner of the former Maryland Square Shopping Center site, Maryland Square LLC (MS). MS has stated their intention to demolish the buildings that currently occupy the Maryland Square Shopping Center site, with plans for redevelopment of the property in the next year. Ongoing discussions with MS could change the proposed plans for installations of an AS remedial system. Al Phillips will continue to update NDEP if this moves forward.

## 6.0 REFERENCES

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- Converse Consultants, 2000. Offsite Investigation, Maryland Square Shopping Center, Las Vegas, NV dated November 28, 2000.
- , 2001. A through K Data Research Report, dated August 22, 2001.
- , 2002a. Work Plan – Additional Site Investigation, dated January 11, 2002.
- , 2002b. Additional Soil and Groundwater Investigation, dated November 13, 2002.
- , 2003a. Additional Soil and Groundwater Investigation, dated May 16, 2003.
- , 2003b. Preliminary Corrective Action Plan (CAP), dated June 27, 2003.
- , 2003c. Work Plan – Additional Site Activities, dated September 12, 2003.
- , 2003d. Groundwater Monitoring Report – 3rd Quarter 2003, dated October 31, 2003.
- , 2004. Well Installation/Slug Testing/Groundwater Monitoring Report – 4th Quarter 2003 and 1st Quarter 2004, dated March 2004.
- SECOR International Incorporated, 2004. Preliminary Well Assessment, Monitoring Well MW-11, West of Dillard's Boulevard Mall Property, Las Vegas, NV, dated March 29, 2004.
- URS, 2004. Revised Work Plan, Proposed Subsurface Investigation, Former Al Phillips the Cleaner Site, Maryland Square Shopping Center, Las Vegas, NV, dated September 10, 2004.
- URS, 2005. Subsurface Investigation, Former Al Phillips the Cleaner Site, Maryland Square Shopping Center, Las Vegas, NV, dated July 11, 2005 .
- URS, 2005. Quarterly Groundwater Sampling, Former Al Phillips the Cleaner Site, Maryland Square Shopping Center, Las Vegas, NV, dated September 26, 2005.
- URS, 2005. Proposed Remedial Pilot Study, Former Al Phillips the Cleaner Site, Maryland Square Shopping Center, Las Vegas, NV, dated December 27, 2005.
- URS, 2006. Quarterly Groundwater Sampling, Former Al Phillips the Cleaner Site, Maryland Square Shopping Center, Las Vegas, NV, dated February 6, 2006.
- Wiedemeier, T. H., et al. 1998. Technical protocol for evaluating natural attenuation of chlorinated solvents in ground water. U.S. Environmental Protection Agency, Office of Research and Development, Publication U.S. EPA/600/R-98/128.

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## TABLES

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**TABLE 1**  
**SUMMARY OF WELL CHARACTERISTICS AND GROUNDWATER LEVELS**  
**Maryland Square Shopping Center**

Well ID	Install Date	Top of Casing (Elevation)	Screen Depth (in ft)	Sample Date	GROUNDWATER DEPTH/ELEVATION DATA	
					Depth to Water (in ft)	Elevation (in ft)
SHALLOW WELLS						
MW-1	Aug-00	1,991.81	10-30	Oct 00	17.54	1974.27
		1,992.04		Sep 02	17.90	1974.14
				May 03	18.70	1973.34
				Sept 03	18.97	1973.07
				Jan 04	19.30	1972.74
				May 05	15.24	1976.80
				Sept 05	16.74	1975.30
				Dec 05	17.61	1974.43
				Mar 06	18.42	1973.62
MW-2	Oct-00	1,983.79	10-32	Oct 00	15.52	1968.27
		1,983.99		Sep 02	16.62	1967.37
				May 03	17.15	1966.84
		1,983.97		Sept 03	17.70	1966.27
				Jan 04	18.25	1965.72
				May 05	14.65	1969.32
				Dec 05	16.00	1967.97
MW-3	Oct-00	1,984.19	10-32	Oct 00	15.95	1968.24
		1,984.46		Sep 02	17.20	1967.26
				May 03	17.70	1966.76
		1,984.43		Sept 03	18.35	1966.08
				Jan 04	19.25	1965.18
				May 05	15.22	1969.21
				Dec 05	16.45	1967.98
MW-4	Oct-00	1,989.68	10-32	Oct 00	16.95	1972.73
		1,989.87		Sep 02	NM	NM
				May 03	18.71	1971.16
		1,989.85		Sept 03	19.05	1970.80
				Jan 04	19.86	1969.99
				May 05	15.83	1974.02
				Dec 05	17.62	1972.23
MW-5	Oct-00	1,988.93	10-32	Oct 00	16.20	1972.73
		1,989.18		Sep 02	17.00	1972.18
				May 03	17.80	1971.38
				Sept 03	18.07	1971.11
				Jan 04	18.65	1970.53
				May 05	14.87	1974.31
				Dec 05	16.80	1972.38

**TABLE 1**  
**SUMMARY OF WELL CHARACTERISTICS AND GROUNDWATER LEVELS**  
**Maryland Square Shopping Center**

Well ID	Install Date	Top of Casing (Elevation)	Screen Depth (in ft)	Sample Date	GROUNDWATER DEPTH/ELEVATION DATA	
					Depth to Water (in ft)	Elevation (in ft)
MW-6	Oct-00	1,988.72	10-32	Oct 00	17.41	1971.31
		1,989.01		Sep 02	18.26	1970.75
				May 03	18.87	1970.14
				Sept 03	19.25	1969.76
				Jan 04	19.74	1969.27
				May 05	16.21	1972.80
				Sept 05	17.26	1971.75
				Dec 05	17.88	1971.13
MW-7	Sep 02	1,990.28	10-30	Sep 02	18.27	1972.01
		1,990.25		May 03	16.60	1973.68
				Sept 03	16.79	1973.46
				Jan 04	17.32	1972.93
				May 05	13.86	1976.39
				Sept 05	14.97	1975.28
				Dec 05	15.45	1974.80
				Mar 06	16.41	1973.84
MW-8	Sep 02	1,994.25	10-30	Sep 02	18.55	1975.70
		1,994.23		May 03	19.50	1974.75
				Sept 03	19.55	1974.68
				Jan 04	19.91	1974.32
				May 05	15.51	1978.72
				Dec 05	18.48	1975.75
MW-10	Sep 02	1,983.81	10-30	Sep 02	18.51	1965.30
		1,983.80		May 03	18.65	1965.16
				Sept 03	19.45	1964.35
				Jan 04	20.32	1963.48
				May 05	16.76	1967.04
				Sept 05	16.95	1966.85
				Dec 05	17.64	1966.16
				Mar 06	19.25	1964.55
MW-11	Sep 02	1,980.24	13.5-33.5	Sep 02	24.22	1956.02
				May 03	24.25	1955.99
				Sept 03	25.62	1954.62
				Jan 04	26.22	1954.02
				May 05	22.55	1957.69
MW-12	Sep 02	1,996.59	13.5-33.5	Sep 02	14.90	1981.69
		1,996.50		May 03	15.07	1981.52
				Sept 03	15.30	1981.20

**TABLE 1**  
**SUMMARY OF WELL CHARACTERISTICS AND GROUNDWATER LEVELS**  
**Maryland Square Shopping Center**

Well ID	Install Date	Top of Casing (Elevation)	Screen Depth (in ft)	Sample Date	GROUNDWATER DEPTH/ELEVATION DATA	
					Depth to Water (in ft)	Elevation (in ft)
MW-12	Sep 02	1,996.50	13.5-33.5	Jan 04	15.40	1981.10
				May 05	12.34	1984.16
				Sept 05	13.45	1983.05
				Dec 05	14.20	1982.30
				Mar 06	15.00	1981.50
MW-13	May-03	1,984.23	9-29	May 03	17.25	1966.98
		1,984.20		Sept 03	17.60	1966.60
				Jan 04	18.00	1966.20
				May 05	14.76	1969.44
				Sept 05	15.60	1968.60
				Dec 05	16.05	1968.15
				Mar 06	17.24	1966.96
MW-14	Nov-03	1,987.89	15-40	Jan 04	18.35	1969.54
				May 05	15.02	1972.87
				Dec 05	16.50	1971.39
				Mar 06	17.54	1970.35
MW-15	Nov-03	1,983.28	15-32	Jan 04	15.60	1967.68
				May 05	12.59	1970.69
				Sept 05	13.45	1969.83
				Dec 05	13.77	1969.51
				Mar 06	15.00	1968.28
MW-16	Nov-03	1,980.63	19-32	Jan 04	26.22	1954.41
				May 05	23.41	1957.22
				Sept 05	24.12	1956.51
				Dec 05	24.21	1956.42
				Mar 06	25.06	1955.57
MW-17 (4-inch)	Apr-05	1,990.92	15-20	May 05	15.07	1975.85
				Dec 05	17.05	1973.87
MW-18 (4-inch)	Apr-05	1,962.87	15-20	May 05	8.71	1954.16
				Sept 05	9.69	1953.18
				Dec 05	9.70	1953.17
				Mar 06	10.21	1952.66
MW-19	Nov-03	1,980.26	19-35	Jan 04	25.65	1954.61
				May 05	22.70	1957.56
				Dec 05	23.65	1956.61
MW-20	Nov-03	1,979.99	19-35	Jan 04	25.50	1954.49
				May 05	22.58	1957.41
				Dec 05	23.55	1956.44

**TABLE 1**  
**SUMMARY OF WELL CHARACTERISTICS AND GROUNDWATER LEVELS**  
**Maryland Square Shopping Center**

Well ID	Install Date	Top of Casing (Elevation)	Screen Depth (in ft)	Sample Date	GROUNDWATER DEPTH/ELEVATION DATA	
					Depth to Water (in ft)	Elevation (in ft)
MW-21	Nov-03	1,979.56	19-35	Jan 04	24.72	1954.84
				May 05	21.76	1957.80
				Sept 05	22.70	1956.86
				Dec 05	22.85	1956.71
				Mar 06	23.46	1956.10
MW-22 (4-inch)	Apr-05	1,974.76	15-20	May 05	23.04	1951.72
				Sept 05	24.18	1950.58
				Dec 05	24.30	1950.46
				Mar 06	24.68	1950.08
MW-23 (4-inch)	Apr-05	1,962.32	15-20	May 05	13.06	1949.26
				Dec 05	14.05	1948.27
MW-24 (4-inch)	Apr-05	1,960.74	15-20	May 05	10.72	1950.02
				Sept 05	11.75	1948.99
				Dec 05	11.65	1949.09
				Mar 06	12.10	1948.64
MW-25 (4-inch)	Apr-05	1,960.74	15-20	May 05	16.01	1944.73
				Sept 05	17.45	1943.29
				Dec 05	16.85	1943.89
				Mar 06	17.30	1943.44
MW-26 (4-inch)	Mar-06	*	10-35	Mar 06	15.60	
MW-27 (4-inch)	Mar-06	*	10-35	Mar 06	13.48	
INTERMEDIATE WELL						
MW-9	Sep-02	1,992.26	48.5-50	Sep 02	18.46	1973.80
		1,992.26		May 03	19.15	1973.11
				Sept 03	19.02	1973.24
				Jan 04	19.05	1973.21
				May 05	15.36	1976.90
				Sept 05	17.85	1974.41
				Dec 05	17.68	1974.58
				Mar-06	18.55	1973.71

NOTES: All measurements are in feet. Top of casing elevation is in feet above mean sea level.  
All wells are 2-inch diameter PVC casing and screen, unless indicated.  
All wells installed prior to September 2003 were resurveyed in September of 2003.  
NM = 'not measured' ; \* = Mar 2006 installed wells yet to be surveyed

**TABLE 2**  
**SUMMARY OF FIELD WATER QUALITY MEASUREMENTS IN MONITORING WELLS**  
**Maryland Square Shopping Center**

Well ID	Sample Date	pH	Temperature (°C)	Specific Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
<b>SHALLOW WELLS</b>							
MW-1	Jan-04	6.97	22.5	3.48	0.93	NM	NM
	May-05	7.02	26.0	3.98	5.43	110	441
	Sep-05	7.08	27.5	4.16	6.99	129	64
	Dec-05	6.98	26.9	5.10	2.01	404	290
	Mar-06	4.95	23.1	5.62	**	545	>999
MW-2	Jan-04	7.05	23.2	3.10	1.13	NM	NM
	May-05	6.93	23.4	3.47	4.82	193	698
	Dec-05	6.63	25.4	4.82	2.67	264	360
MW-3	Jan-04	6.87	22.4	2.91	0.97	NM	NM
	May-05	6.99	26.0	2.88	2.54	149	**
	Dec-05	6.55	27.3	4.69	0.88	33	100
MW-4	Jan-04	6.95	22.0	2.71	1.23	NM	NM
	May-05	6.83	24.2	3.73	3.68	160	664
	Dec-05	6.68	25.9	4.90	3.22	219	670
MW-5	Jan-04	6.72	22.3	2.61	1.20	NM	NM
	May-05	7.09	25.4	2.59	4.56	184	**
	Dec-05	6.78	26.8	5.28	1.51	377	>999
MW-6	Jan-04	6.97	22.4	2.31	1.19	NM	NM
	May-05	6.91	25.9	2.35	2.81	123	**
	Sep-05	6.99	26.9	3.95	6.23	-119	34
	Dec-05	6.80	26.5	4.86	1.10	163	220
MW-7	Jan-04	7.00	22.4	2.23	0.93	NM	NM
	May-05	7.10	24.8	1.79	4.03	129	**
	Sep-05	6.97	26.6	4.62	6.22	144	140
	Dec-05	6.67	23.8	5.33	1.80	472	5
	Mar-06	4.67	22.4	6.71	**	634	428
MW-8	Jan-04	6.99	22.0	2.16	1.04	NM	NM
	May-05	7.03	27.7	1.75	3.64	107	**
	Dec-05	6.68	24.1	4.24	2.08	483	>999
MW-10	Jan-04	7.00	24.4	3.13	1.03	NM	NM
	May-05	6.82	28.1	3.20	1.46	-253	25
	Sep-05	6.96	27.9	2.90	3.89	-239	28
	Dec-05	6.69	23.9	3.66	1.47	-140	57
	Mar-06	5.73	21.3	1.77	**	-154	153
MW-11	Jan-04	NM	NM	NM	NM	NM	NM

**TABLE 2**  
**SUMMARY OF FIELD WATER QUALITY MEASUREMENTS IN MONITORING WELLS**  
**Maryland Square Shopping Center**

Well ID	Sample Date	pH	Temperature (°C)	Specific Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
MW-11	May-05	NM	NM	NM	NM	NM	NM
MW-12	Jan-04	6.99	22.4	2.15	NM	NM	NM
	May-05	6.76	24.9	2.58	3.22	219	**
	Sep-05	7.03	25.6	4.22	4.96	95	160
	Dec-05	6.68	22.5	4.98	2.00	523	210
	Mar-06	4.93	23.5	6.65	**	503	91
MW-13	Jan-04	6.61	22.2	3.29	1.07	NM	NM
	May-05	6.97	24.5	2.06	4.16	118	>999
	Sep-05	7.07	25.4	3.95	6.85	144	270
	Dec-05	6.70	24.9	5.03	2.19	250	330
	Mar-06	5.45	22.8	3.64	**	68	44
MW-14	Jan-04	6.99	22.3	2.27	1.30	NM	NM
	May-05	6.95	24.7	3.23	NM	140	NM
	Dec-05	6.78	26.1	5.31	2.07	206	>999
	Mar-06	5.23	24.2	6.76	**	234	898
MW-15	Jan-04	6.35	22.4	2.20	1.00	NM	NM
	May-05	6.99	25.1	2.33	2.85	164	**
MW-15	Sep-05	6.97	25.8	3.57	3.48	-24	36
	Dec-05	6.58	25.9	4.45	1.03	-38	140
	Mar-06	4.70	23.9	6.40	**	613	20
MW-16	Jan-04	6.97	22.4	2.31	0.68	NM	NM
	May-05	7.12	25.2	2.88	1.10	-4	**
	Sep-05	7.00	24.6	3.42	3.50	-31	520
	Dec-05	6.74	25.3	3.76	1.30	48	>999
	Mar-06	5.15	23.8	5.74	**	162	199
MW-17*	May-05	6.92	24.1	3.49	5.94	181	22
	Dec-05	6.90	26.8	4.65	2.30	240	6
MW-18*	May-05	7.10	24.3	3.86	5.56	139	>999
	Sep-05	7.10	26.3	4.12	6.21	88	3
	Dec-05	6.79	25.2	4.73	1.98	420	**
	Mar-06	5.17	23.3	6.21	**	237	3
MW-19	Jan-04	6.99	22.4	1.90	1.02	NM	NM
	May-05	7.13	25.0	1.86	5.76	130	**
	Dec-05	6.64	24.7	4.74	1.95	388	**
MW-20	Jan-04	6.94	22.6	2.07	1.11	NM	NM

**TABLE 2**  
**SUMMARY OF FIELD WATER QUALITY MEASUREMENTS IN MONITORING WELLS**  
**Maryland Square Shopping Center**

Well ID	Sample Date	pH	Temperature (°C)	Specific Conductance (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)	Turbidity (ntu)
MW-20	May-05	7.16	23.6	1.32	4.97	131	**
	Dec-05	6.76	20.5	4.37	0.77	272	**
MW-21	Jan-04	6.91	22.3	2.04	1.08	NM	NM
	May-05	7.07	24.6	2.82	2.88	131	**
	Sep-05	7.06	25.8	4.66	4.07	109	39
	Dec-05	6.64	24.3	4.60	0.54	264	>999
	Mar-06	5.52	23.0	3.58	**	309	140
MW-22*	May-05	6.79	24.1	3.89	1.68	46	474
	Sep-05	6.90	23.9	4.25	7.16	46	10
	Dec-05	6.42	24.6	4.20	1.31	213	**
	Mar-06	4.79	24.0	6.09	**	269	30
MW-23*	May-05	7.00	24.5	3.63	2.56	121	**
	Dec-05	6.71	24.9	4.91	2.13	320	**
MW-24*	May-05	6.97	23.1	3.56	1.48	76	>999
	Sep-05	7.00	25.8	3.83	3.62	5	25
	Dec-05	6.56	25.6	4.46	1.04	183	29
	Mar-06	4.70	22.6	6.02	**	503	1
MW-25*	May-05	7.03	23.6	4.00	4.34	141	>999
	Sep-05	7.01	26.2	4.18	5.10	57	30
	Dec-05	6.63	24.7	5.28	1.35	417	0
	Mar-06	5.15	23.6	6.67	**	255	94
MW-26	Mar-06	6.83	23.8	3.75	2.59	158	0
MW-27	Mar-06	6.83	21.9	3.28	2.44	142	0
Average		6.63	24.4	3.84	2.75	182	197
<b>INTERMEDIATE WELL</b>							
MW-9	Jan-04	6.99	22.6	2.50	1.18	NM	NM
	May-05	7.14	26.1	2.68	7.56	130	296
	Sep-05	7.17	27.1	1.81	6.58	111	4
	Dec-05	6.88	26.6	2.45	2.49	123	33
	Mar-06	5.06	25.9	2.08	**	496	-1
Average		6.65	25.7	2.30	4.45	121	150

NOTES: \* = wells installed in Apr 2005. \*\* = instrument failure

Monitoring well MW-11 not sampled due to detection of floating hydrocarbons in the well.

oC = degrees Celsius. uS = microsiemens (equivalent to umhos). mg/L = milligrams per liter.

mV = millivolts. Ntu = Nephelometric Turbidity Units

TABLE 3  
SELECTED VOC CONCENTRATIONS IN MONITORING WELLS  
Maryland Square Shopping Center

Well ID	Sample Date	Concentration (in ug/L)		
		perchloroethylene (PCE)	trichloroethylene (TCE)	cis-1,2-Dichloroethene
SHALLOW WELLS				
MW-1	Aug 00	2,300	ND	ND
	Oct 00	NS	NS	NS
	Sep 02	2,000	ND	ND
	May 03	870	ND	ND
	Sep 03	2,300	ND	ND
	Nov 03	-	-	-
	Jan 04	1,700	ND	ND
	May 05	3,500	ND	ND
	Sep 05	1,700	ND	ND
	Dec 05	820	ND	ND
	Mar 06	420	ND	ND
MW-2	Oct 00	3,000	18	18
	Sep 02	3,000	13	13
	May 03	1,400	ND	ND
	Sep 03	1,700	ND	ND
	Nov 03	-	-	-
	Jan 04	1,700	ND	ND
	May 05	2,050	17	9.7
	Dec 05	2,900	ND	ND
MW-3	Oct 00	98	ND	ND
	Sep 02	ND	ND	ND
	May 03	7	ND	ND
	Sep 03	12	ND	ND
	Nov 03	-	-	-
	Jan 04	7	ND	ND
	May 05	ND	ND	ND
	Dec 05	ND	ND	ND
MW-4	Oct 00	14	ND	ND
	Sep 02	25	ND	ND
	May 03	24	ND	ND
	Sep 03	100	ND	ND
	Nov 03	-	-	-
	Jan 04	220	ND	ND
	May 05	25	ND	ND
	Dec 05	15	ND	ND
MW-5	Oct 00	100	ND	ND
	Sep 02	110	ND	ND
	May 03	240	ND	ND
	Sep 03	220	ND	ND
	Nov 03	-	-	-
	Jan 04	370	ND	ND
	May 05	146	ND	ND
	Dec 05	93	ND	ND



TABLE 3  
SELECTED VOC CONCENTRATIONS IN MONITORING WELLS  
Maryland Square Shopping Center

Well ID	Sample Date	Concentration (in ug/L)		
		perchloroethylene (PCE)	trichloroethene (TCE)	cis-1,2-Dichloroethene
MW-6	Oct 00	2,200	13	8.1
	Sep 02	1,000	41	14
	May 03	710	22	ND
	Sep 03	1,300	ND	ND
	Nov 03	-	-	-
	Jan 04	2,400	ND	ND
	May 05	2,090	13	11
	Sep 05	890	13	23
	Dec 05	530	41	21
MW-7	Sep 02	ND	ND	ND
	May 03	1.7	ND	ND
	Sep 03	2.0	ND	ND
	Nov 03	-	-	-
	Jan 04	11.0	ND	ND
	May 05	ND	ND	ND
	Sep 05	3.3	ND	ND
	Dec 05	1.2	ND	ND
	Mar 06	1.5	ND	ND
MW-8	Sep 02	5.4	ND	ND
	May 03	3.2	ND	ND
	Sep 03	3.7	ND	ND
	Nov 03	-	-	-
	Jan 04	4.7	ND	ND
	May 05	5.6	5.6	ND
	Dec 05	3.6	ND	ND
MW-10	Sep 02	ND	ND	ND
	May 03	ND	ND	ND
	Sep 03	15.0	ND	ND
	Nov 03	-	-	-
	Jan 04	ND	ND	ND
	May 05	ND	ND	ND
	Sep 05	ND	ND	ND
	Dec 05	ND	ND	ND
	Mar 06	ND	ND	ND
MW-11	Sep 02	ND	ND	ND
	May 03	ND	ND	ND
	Sep 03	NS <sup>(1)</sup>	NS <sup>(1)</sup>	NS <sup>(1)</sup>
	Nov 03	NS <sup>(1)</sup>	NS <sup>(1)</sup>	NS <sup>(1)</sup>
	Jan 04	NS <sup>(1)</sup>	NS <sup>(1)</sup>	NS <sup>(1)</sup>
	May 05	NS <sup>(1)</sup>	NS <sup>(1)</sup>	NS <sup>(1)</sup>
	Dec 05	NS <sup>(1)</sup>	NS <sup>(1)</sup>	NS <sup>(1)</sup>
MW-12	Sep 02	ND	ND	ND
	May 03	1.3	ND	ND

TABLE 3  
SELECTED VOC CONCENTRATIONS IN MONITORING WELLS  
Maryland Square Shopping Center

Well ID	Sample Date	Concentration (mg/L)		
		perchloroethylene (PCE)	trichloroethylene (TCE)	cis-1,2-Dichloroethene
MW-12	Sep 03	14.0	ND	ND
	Nov 03	-	-	-
	Jan 04	6.1	ND	ND
	May 05	ND	ND	ND
	Sep 05	1.1	ND	ND
	Dec 05	1.2	ND	ND
	Mar 06	1.1	ND	ND
MW-13	May 03	2,100	ND	ND
	Sep 03	2,800	ND	ND
	Nov 03	-	-	-
	Jan 04	2,700	ND	ND
	May 05	5,310	ND	ND
	Sep 05	2,600	ND	ND
	Dec 05	3,400	ND	ND
MW-14	Mar 06	3,700	ND	ND
	Nov 03	1,900	ND	ND
	Jan 04	2,100	ND	ND
	May 05	2,920	5.5	ND
	Dec 05	3,400	ND	ND
	Mar 06	2,500	ND	ND
	Nov 03	5.2	ND	ND
MW-15	Jan 04	2.7	ND	ND
	May 05	ND	ND	ND
	Sep 05	3.6	ND	ND
	Dec 05	5.0	ND	ND
	Mar 06	4.5	ND	ND
	Nov 03	ND	ND	ND
	Jan 04	ND	ND	ND
MW-16	May 05	ND	ND	ND
	Sep 05	ND	ND	ND
	Dec 05	ND	ND	ND
	Mar 06	ND	ND	ND
	May 05	520	ND	ND
	Dec 05	470	ND	ND
	May 05	1,600	ND	ND
MW-18	Sep 05	1,700	ND	ND
	Dec 05	2,400	ND	ND
	Mar 06	1,700	ND	ND
	Nov 03	1,100	ND	ND
	Jan 04	1,200	ND	ND
	May 05	873	ND	ND
	Dec 05	1,300	ND	ND

TABLE 3  
SELECTED VOC CONCENTRATIONS IN MONITORING WELLS  
Maryland Square Shopping Center

Well ID	Sample Date	Concentration (in ug/L)		
		perchloroethylene (PCE)	trichloroethene (TCE)	cis-1,2-Dichloroethene
MW-20	Nov 03	1,800	ND	ND
	Jan 04	290	2.8	ND
	May 05	1,460	ND	ND
	Dec 05	1,800	ND	ND
MW-21	Nov 03	51	ND	ND
	Jan 04	55	ND	ND
	May 05	30	ND	ND
	Sep 05	19	2.4	1.5
	Dec 05	16	1.8	1.3
	Mar 06	43	ND	ND
MW-22	May 05	ND	ND	ND
	Sep 05	ND	ND	ND
	Dec 05	1.0	ND	ND
	Mar 06	ND	ND	ND
MW-23	May 05	1,430	ND	ND
	Dec 05	1,900	ND	ND
MW-24	May 05	ND	ND	ND
	Sep 05	4.3	ND	ND
	Dec 05	6.7	ND	ND
	Mar 06	6.5	ND	ND
MW-25	May 05	993	ND	ND
	Sep 05	920	ND	ND
	Dec 05	1,000	ND	ND
	Mar 06	970	ND	ND
MW-26	Mar 06	730	ND	ND
MW-27	Mar 06	220	ND	ND
INTERMEDIATE WELL				
MW-9	Sep 02	670.0	ND	ND
	May 03	59.0	ND	ND
	Sep 03	9.2	ND	ND
	Nov 03	-	-	-
	Jan 04	10	ND	ND
	May 05	353	ND	ND
	Sep 05	64	ND	ND
	Dec 05	190	ND	ND
	Mar 06	ND	ND	ND

NOTES: ND = None Detected. NS = Not Sampled. '-' cells indicate no data available.

<sup>(1)</sup> = Monitoring Well MW-11 was not sampled due to detection of floating hydrocarbons in the well.

ug/L = micrograms per liter.

PCE is perchloroethylene (tetrachloroethene). The Maximum Contaminant Level for PCE in drinking water is 5 ug/L.

**TABLE 4**  
**SUMMARY OF OTHER ANALYTICAL DATA**  
**Maryland Square Shopping Center**

Well ID	Sample Date	Concentration (in mg/L)						
		Total Iron	Dissolved Manganese	Chloride	Nitrate as N	Sulfate	Total Alkalinity	Total Organic Carbon
SHALLOW WELLS								
MW-1	May 05	ND	ND	180	8.9	1,613	ND	5.1
	Sep 05	3.70	0.057	180	8.8	1,800	230	6.0
	Dec 05	5.00	0.027	200	8.1	1,800	190	1.7
	Mar-06	24.00	0.230	170	8.4	1,600	250	3.8
MW-6	May 05	ND	0.040	200	10.5	1,615	ND	6.0
MW-12	May 05	ND	ND	270	23.9	1,618	16	4.8
MW-13	May 05	ND	ND	170	6.9	1,562	ND	1.7
	Sep 05	19.00	0.690	170	6.1	1,700	260	3.6
	Dec 05	7.00	0.110	190	5.9	1,600	220	1.6
	Mar-06	7.70	0.200	240	7.0	1,500	220	1.7
MW-18	Sep 05	0.92	0.020	160	5.4	1,800	240	3.3
	Dec 05	3.70	0.015	180	4.7	1,600	200	1.4
	Mar-06	2.60	0.012	150	5.4	1,500	220	1.4
MW-19	May 05	ND	ND	170	5.9	1,599	19	2.7
MW-23	May 05	ND	ND	200	7.5	1,596	ND	1.8
MW-25	May 05	ND	ND	180	5.9	1,616	ND	1.7
	Sep 05	1.20	0.020	170	4.5	1,900	300	4.4
	Dec 05	3.00	ND	190	4.5	1,900	230	1.3
	Mar-06	3.40	0.018	160	5.2	1,600	240	2.0
Average			0.140	186	8	1659	197	2.9
INTERMEDIATE WELL								
MW-9	May 05	ND	ND	110	5.2	1,094	ND	2.1
Average				110	5.2	1,094		2.1

NOTES: ND is none detected. Empty cells indicate no sampling data available.  
mg/L is milligrams per liter.  
Total iron and manganese are total dissolved values as the samples were field filtered.  
Empty cells indicate no sampling data available.  
Shallow wells are approximately 25 ft deep; Intermediate wells are 30-40 ft deep.

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## FIGURES

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**APPENDIX A**  
**Borehole and Well Construction Logs for Wells MW-26 and MW-27**

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## BOREHOLE LOG MW-26



Al Phillips The Cleaner  
Maryland Square Shopping Center  
Subsurface Investigation  
Las Vegas, Nevada

Project No. 2698724.00005

Date Started: 3/22/06  
Date Completed: 3/22/06  
Drilling Company: WDC Exploration  
Drilling Method: Hollow Stem Auger  
Sampling Method: Cuttings Inspection  
Logged By: Randy S. Kyes

Depth In Feet	Time (0100 hrs)	Sample	Well Material Log	PID/FID (ppm)	Sample Number	USCS/Other	Graphic Log	SOIL DESCRIPTION	Well: MW-27 Elev.:	Remarks/Well Information
0	1030							Asphalt		<b>WELL CONSTRUCTION</b> Date Compl.: 3/22/05 Comp. Rep: R.S. Kyes  <b>SURFACE COMPLETION</b> Type: Flush Mount Vault: Traffic Diameter: 12" Seal: Concrete Depth: 0'-1'  <b>WELL CASING</b> Material: PVC Diameter: 4" Depth: 0'-10' Joints: flush  <b>WELL SCREEN</b> Material: PVC Diameter: 4" Depth: 10'-35' Joints: flush Opening: 0.02" slotted Cap: expanding  <b>SAND FILTER PACK</b> Type: Montgomery Size: 3 Depth: 7'-40'  <b>ANNULUS SEAL</b> Bentonite Depth: 4'-7' Concrete Depth: 0'-4'  <b>REMARKS</b> No sampling performed. borehole was drilled and a monitor well was installed.  Soil profile characterized by inspection of drill cuttings.
1						GW		0'-5' Sandy GRAVEL, poor sort, (road base), dry		
2										
3										
4										
5	1115									
6										
7										
8						SM		5'-13' Silty SAND, brn, dry, some small gravel.		
9										
10										
11										
12										
13										
14										
15										
16										
17										
18						CL		13'-24' Silty CLAY, brn, moist, some pea gravel.		
19										
20										
21										
22										
23										
24										
25						CL		24'-40' Silty CLAY, brn, v. wet		



## BOREHOLE LOG MW-26



Al Phillips The Cleaner  
Maryland Square Shopping Center  
Subsurface Investigation  
Las Vegas, Nevada

Project No. 2698724.00005

Date Started:  
Date Completed:  
Drilling Company:  
Drilling Method:  
Sampling Method:  
Logged By:

3/22/06  
3/22/06  
WDC Exploration  
Hollow Stem Auger  
Cuttings Inspection  
Randy S. Kyes

Depth In Feet	Time (0100 hrs)	Sample	Well Material Log	PID/FID (ppm)	Sample Number	USCS/Other	Graphic Log	SOIL DESCRIPTION	Well: MW-25 Elev.: 1,960.74	Remarks/Well Information
26										
27						CL		24'-40' Silty CLAY, brn, v. wet		
28										
29										
30										
31										
32										
33						CL		24'-40' Silty CLAY, brn, v. wet		
34										
35										
36										
37										
38										
39	1150									
40								Bottom of borehole @ 40 ft. bgs		
41								Groundwater encountered at		
42								Approximately 15' bgs.		
43										
44										
45										
46										
47										
48										
49										
50										
51										





# BOREHOLE LOG MW-27



Al Phillips The Cleaner  
Maryland Square Shopping Center  
Subsurface Investigation  
Las Vegas, Nevada

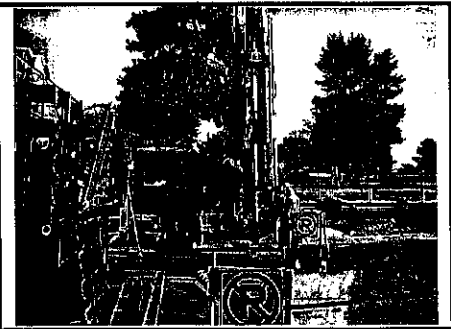
Project No. 2698724.00005

Date Started: 3/22/06  
Date Completed: 3/23/06  
Drilling Company: WDC Exploration  
Drilling Method: Hollow Stem Auger  
Sampling Method: Cuttings Inspection  
Logged By: Randy S. Kyes

Depth In Feet	Time (0100 hrs)	Sample	Well Material Log	PID/FID (ppm)	Sample Number	USCS/Other	Graphic Log	SOIL DESCRIPTION	Well: MW-27 Elev.:	Remarks/Well Information
0	1520							Asphalt		<b>WELL CONSTRUCTION</b> Date Compl.: 3/23/05 Comp. Rep: R.S. Kyes  <b>SURFACE COMPLETION</b> Type: Flush Mount Vault: Traffic Diameter: 12" Seal: Concrete Depth: 0'-1'  <b>WELL CASING</b> Material: PVC Diameter: 4" Depth: 0'-10" Joints: flush  <b>WELL SCREEN</b> Material: PVC Diameter: 4" Depth: 10'-35" Joints: flush Opening: 0.02" slotted Cap: expanding  <b>SAND FILTER PACK</b> Type : Montgomery Size: 3 Depth: 7'-40'  <b>ANNULUS SEAL</b> Bentonite Depth: 4'-7' Concrete Depth: 0'-4'  <b>REMARKS</b> No sampling performed. borehole was drilled and a monitor well was installed.  Soil profile characterized by inspection of drill cuttings.  Restart @ 0714 on 03/23
1						SW		0'-5' Gravely SAND, well sorted, (road base), dry		
2										
3										
4										
5										
6										
7										
8						GM		5'-12' GRAVEL, w/ silty sand, dry, well sorted.		
9										
10										
11										
12										
13										
14										
15	1545									
16	0714									
17										
18						CL		12'-21' Silty CLAY, brn, moist,		
19										
20										
21								21'-22' CALICHE, soft, whitish		
22										
23										
24										
25						CL		22'-26' Silty CLAY, brn, v. wet		



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Date Started: 3/22/06  
Date Completed: 3/23/06  
Drilling Company: WDC Exploration  
Drilling Method: Hollow Stem Auger  
Sampling Method: Cuttings Inspection  
Logged By: Scott Ball

Depth In Feet	Time (0100 hrs)	Sample	Well Material Log	PID/FID (ppm)	Sample Number	USCS/Other	Graphic Log	SOIL DESCRIPTION	Well: MW-25 Elev.: 1,960.74	Remarks/Well Information
26						CL		26'-40' Silty CLAY, brn, v. wet		
27										
28										
29										
30										
31										
32										
33						CL		34'-40' same as above		
34										
35										
36										
37										
38										
39	0727									03/23/06.
40								Bottom of borehole @ 40 ft. bgs		
41								Groundwater encountered at		
42								Approximately 15' bgs.		
43										
44										
45										
46										
47										
48										
49										
50										
51										